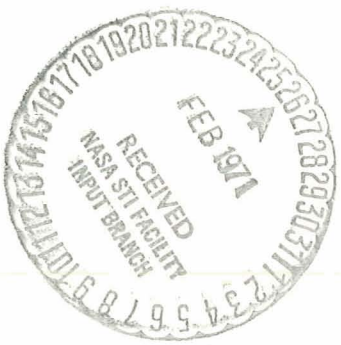
SELECTED PROFESSIONAL AND TECHNICAL FILMS

PRODUCED AND DISTRIBUTED BY

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

FEBRUARY 1971



SELECTED PROFESSIONAL AND TECHNICAL FILMS

This is a list of NASA films produced primarily for audiences and individuals that have a professional interest in the subject matter. They are suitable for showing to audiences at professional, technical or advanced educational levels with adequate background in the scientific-technical fields. Prints may be obtained on a free loan basis - normally for a period of ten days. The borrower must pay return postage (book rate) and insurance.

The films are listed in 5 categories as follows:

I. Calibration

II. Experiments - scientific and engineering

A. Boiling experiments

B. Combustion, fires and fire fighting

C. Fluid and gas flow and behavior

D. Medical Research

E. Metals, Materials, Chemicals

III. NASA Facilities

IV. Reliability and Quality Assurance

V. Technology and Technology Utilization

VI. NASA Programs and Operations

HOW TO OBTAIN PRINTS:

FROM U. S. RESIDENTS:

1. Note the initial after each film listing under the column headed "ORDER PRINT FROM."

2. Refer to page 3, "NASA ADDRESSES." Listed here are all of the initials used together with the complete address represented by each.

3. Send your request to the NASA address indicated. Where "ALL NASA CENTERS" is indicated, send your request to the closest one.

FROM FOREIGN RESIDENTS:

Send your request to Headquarters NASA, Code FAM Washington, D. C. 20546.

INFORMATION NEEDED IN EACH REQUEST

When ordering a film, give the following information:

1. The full title and film number (when shown).
2. Name and address (including Zip Code) of the person and organization assuming responsibility for the film.
3. The date the showing is desired or scheduled. If no advance scheduling is needed, state that the film will be shown within one week after receipt.

SOURCE OF PUBLICATIONS

In cases where the film is a supplement to a written report, the report may be obtained from:

1. NASA TECHNICAL MEMORANDA - from the NASA Center which produced the film and from which you are ordering the print. There is no charge.
2. NASA AND NACA TECHNICAL NOTES

   Federal Clearing House for Scientific and Technical Information
   5285 Port Royal Road
   Springfield, Virginia 22151 (enclose $3.00 for each report)

ADDITIONAL FILMS AVAILABLE

Films produced for general audiences are shown in a separate film list entitled "NASA General Informational/Educational Films." A copy will be sent to you on request.

PURCHASE OF PRINTS

Prints of most of the films shown can be purchased. For information on purchase, write to NASA Headquarters, Code FAD, Washington, D. C. 20546.

NASA ADDRESSES

The initials shown after each film listing indicate the NASA Center that produced and distributes the film. Here are the initials used together with their addresses:

ARC - NASA Ames Research Center
Public Affairs Office
Moffett Field, California 94035

GSFC - NASA Goddard Space Flight Center
Photographic Branch, Code 253
Greenbelt, Maryland 20771

Hqtrs. NASA - Headquarters, National Aeronautics and Space Administration
Code FAD
Washington, D. C. 20546

KSC - NASA John F. Kennedy Space Center
Code SOP 323
Kennedy Space Center, Florida 32899

LaRC - NASA Langley Research Center
Public Affairs Office - Mail Stop 154
Langley Station
Hampton, Virginia 23365

LeRC - NASA Lewis Research Center
Office of Educational Services
21000 Brookpark Road
Cleveland, Ohio 44135

MSC - NASA Manned Spacecraft Center
Audio-Visual Branch (BL-6)
Houston, Texas 77058

MSFC - NASA George C. Marshall Space Flight Center
Public Affairs Office
Marshall Space Flight Center, Alabama 35812

NaPO - NASA Pasadena Office
4800 Oak Grove Drive
Pasadena, California 91103

WS - NASA Wallops Station
Public Affairs Office
Wallops Island, Virginia 23337

CALIBRATION

All color - sound unless otherwise noted

	ORDER PRINT FROM
CALIBRATION OF SOLAR CELLS USING HIGH-ALTITUDE AIRCRAFT (Film No. C-236) - 8 mins. - 1965 (Film supplement to NASA Technical Note D-2508)	LeRC
RIDING THE SPACE RANGE Shows how NASA calibrates the equipment in its world-wide net of tracking stations - 18 mins., 1966.	GSFC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

BOILING EXPERIMENTS	ORDER PRINT FROM
VISUAL EVIDENCE OF AN EVAPORATIVE FILM UNDERNEATH A GROWING BUBBLE (Film No. C-252) 7 mins. - 1967 (Film supplement to NASA Technical Note D-3943)	LeRC
SUBCOOLED BOILING IN NORMAL AND ZERO GRAVITY (Film No. C-246 - 11 Mins. - 1966 (Film supplement to NASA Technical Note D-3449)	LeRC
A VISUAL STUDY OF VELOCITY AND BUOYANCY EFFECTS ON BOILING NITROGEN (Film No. C-245) 17 mins. - 1956 (Film supplement to NASA Technical Note D-3354)	LeRC
METASTABLE LEIDENFROST STATES (Film No. C-244) 8 mins. - 1966 (Film supplement to NASA Technical Note D-3226)	LeRC
NUCLEATE AND FILM BOILING IN REDUCED GRAVITY FROM HORIZONTAL AND VERTICAL WIRES (Film No. C-238) 17 mins. - B&W - sound (Film supplement to NASA Technical Report R-216)	LeRC
EXPERIMENTAL OBSERVATIONS OF TRANSIENT BOILING IN SUBCOOLED WATER AND ALCOHOL (Film No. C-237) 11 mins. - 1965 (Film supplement to NASA Technical Note D-2507)	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

BOILING EXPERIMENTS (continued)	ORDER PRINT FROM
BUBBLE DYNAMICS FOR NUCLEATE BOILING IN REDUCED GRAVITY - 18 mins - 1964 (Film supplement to NASA Technical Note D-2299)	LeRC
PHOTOGRAPHIC STUDY OF LIQUID-OXYGEN BOILING AND GAS INJECTION WITHIN THE INJECTOR OF A CHUGGING ROCKET ENGINE (Film No. C-228) 16 mins. (Film supplement to NASA Technical Memo. X-948 - confidential - available to qualified requesters only. Film is unclassified.)	LeRC
AN EXPERIMENTAL STUDY OF THE POOL HEATING OF LIQUID HYDROGEN IN THE SUB-CRITICAL AND SUPER-CRITICAL PRESSURE REGIMES OVER A RANGE OF ACCELERATIONS (Film No. C-224) 9 mins. - 1963 (Film supplement to NASA Technical Note D-1883)	LeRC
A STUDY OF THE EFFECT OF MULTI-g ACCELERATIONS ON NUCLEATE-BOILING EBULLITION (Film No. C-218) 10 mins. - B&W - sound - 1963 (Film supplement to NASA Technical Note D-1196)	LeRC
AN ANALYTICAL AND EXPERIMENTAL STUDY OF THE THERMAL BOUNDARY LAYER AND EBULLITION CYCLE IN NUCLEATE BOILING (Film No. C-215) 6 mins. B&W - sound - 1961	LeRC
FILM BOILING FROM SUBMERGED SPHERES (Film No. C-263) 22 mins. - 1969 (Film supplement to NASA Technical Note D-5124)	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

BOILING EXPERIMENTS (continued)	ORDER PRINT FROM
X-RAY MOTION PICTURES OF HELICAL MERCURY FLOW IN A FORCED FLOW BOILER (Film No. C-265) 10 mins. (Film supplement to NASA Technical Note D-5693)	LeRC
BOILING IN REDUCED GRAVITY (Film No. C-208) 17 mins. - color - sound - 1960	LeRC
LIQUID SEPARATION IN A ROTATING BOILER (Film No. C-253) 12 mins. - 1968 (Film supplement to NASA Technical Note D-4136)	LeRC
HEAT TRANSFER AND LEVITATION OF FLUIDS IN LEIDEN FROST FILM BOILING (Film No. C-267) 14 mins. (Film supplement to NASA Technical Note D-5694	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

COMBUSTION, FIRES AND FIRE FIGHTING	ORDER PRINT FROM
ALKALI METAL FIRES (Film No. C-250) 8 mins. - 1967 (Film supplement to NASA Technical Memorandum X-1365)	LeRC
IGNITION OF A COMBUSTIBLE ATMOSPHERE BY INCANDESCENT CARBON WEAR PARTICLES 8 mins. - B&W - sound - 1960 (Film Supplement to NASA Technical Note D-289)	LeRC
COMBUSTION IN A SMALL SUPERSONIC WIND TUNNEL 12 mins. - 1959 (Film supplement to NASA Memorandum 1-15-59E)	LeRC
PHOTOGRAPHIC STUDIES OF PREIGNITION ENVIRONMENT AND FLAME INITIATION IN A TURBOJET-ENGINE COMBUSTOR 20 mins - B&W - sound - 1952 (Film supplement to NACA Research Memorandum E52111)	LeRC
VISUALIZATION STUDIES OF COMBUSTION INSTABILITY IN A HYDROGEN-OXYGEN MODEL COMBUSTOR (Film No. C-226) 14 mins. - 1963	LeRC
NACA CRASH FIRE RESEARCH (Film No. TF-26) 40 mins. - 1953 A study of the cause and prevention of aircraft crash fires in reciprocating aircraft engines and components in landing and takeoff-type accidents.	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

COMBUSTION, FIRES AND FIRE FIGHTING	ORDER PRINT FROM
HIGH-SPEED PHOTOGRAPHS OF AUTOIGNITION AND KNOCK IN A RECIPROCATING ENGINE 40 mins. - B&W - sound	LeRC
ATOMIZATION AND COMBUSTION STUDIES OF LIQUID HYDRAZINE AND NITROGEN TETROXIDE (Film No. C-258) - 10 mins. - 1968 (Film supplement to NASA Technical Note D-4467)	LeRC
EFFECT OF OXIDIZER PARTICLE SIZE ON ADDITIVE AGGLOMERATION (Film No. C-219) 7 mins. - B&W - sound - 1962 (Film supplement to NASA Technical Note D-1438)	LeRC
HYPERGOLIC FIRE FIGHTING AND RESCUE (Film No. KSC 70-064) 19 mins. - color - sound - 1970. Shows the characteristics of hypergolic propellants and techniques that have been developed at KSC for suppressing hypergolic fires. Techniques for the rescue of astronauts are shown.	ALL NASA CENTERS
DYNAMIC RESPONSE OF HYDRAZINE - NITROGEN TETROXIDE COMBUSTION TO TRANSVERSE GAS FLOW (Film No. C-262) - 9 mins. (1969) (Film supplement to NASA Technical Note D-4984)	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwist noted

FLUID AND GAS FLOW AND BEHAVIOR	ORDER PRINT FROM
A VISUAL STUDY OF SWIRLING AND NONSWIRLING TWO-PHASE TWO-COMPONENT FLOW AT 1 AND 0 GRAVITY (Film No. C-225) 18 mins. - B&W - sound - 1963 (Film supplement to NASA Technical Memorandum X-725)	LeRC
A STUDY OF LIQUID HYDROGEN IN ZERO GRAVITY (Film No. C-223) 15 mins. - 1963 (Film supplement to NASA Technical Memorandum X-723)	LeRC
COMPRESSOR FLOW PATTERNS OBSERVED WITH A HOT-WIRE ANEMOMETER 11 mins. - B&W - sound - 1956	LeRC
SMOKE STUDY OF NOZZLE SECONDARY FLOWS IN A LOW-SPEED TURBINE 20 mins. - B&W - sound - 1954 (Film supplement to NACA Technical Note 3260)	LeRC
SOME VISUAL OBSERVATIONS OF CAVITATION IN ROTATING MACHINERY (Film No. C-239) 17 mins. - B&W - sound - 1965 (Film supplement to NASA Technical Note D-2681)	LeRC
VISUAL OBSERVATIONS OF FLOW THROUGH A RADIAL-BLADED CENTRIFUGAL INPELLER (Film No. C-256) 22 mins. - 1968 (Film supplement to NASA Technical Note D-4282)	LeRC
STABILITY OF CYLINDRICAL BUBBLES IN A VERTICAL PIPE (Film No. C-264) 11½ mins. - (1969)	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

FLUID AND GAS FLOW AND BEHAVIOR	ORDER PRINT FROM
PHOTOGRAPHIC STUDY OF NONWETTING CONDENSING MERCURY FLOW AT ONE AND ZERO GRAVITY (Film No. C-251) 20 mins.	LeRC
TWO-PHASE MERCURY FLOW IN ZERO GRAVITY (Film No. C-221) 12 mins.	LeRC
A VISUAL STUDY OF TWO-PHASE FLOW IN A VERTICAL TUBE WITH HEAT ADDITION (Film No. C-220) - 14 mins. B&W (1962) (Film supplement to NASA Technical Note D-1564)	LeRC
THE BASIC FLOW CYCLE OF THE EXPANSION TUBE (Film No. L-833) 12 mins. (1964)	LaRC
COMPUTER-GENERATED FLOW-VISUALIZATION MOTION PICTURES (Film No. C-271) 12 mins.	LeRC
COMPUTER-MADE MOTION PICTURES AND TIME HISTORY PLOTS OF ION-POLAR-MOLECULE COLLISIONS (Film No. C-269) - 12 mins. (1970) (Film supplement to NASA Technical Note D-5747)	LeRC
A COMPUTER SOLUTION OF THE NAVIER-STOKES EQUATIONS FOR START-UP FLOW IN A REYLEIGH STEP BEARING (Film No. C-266) - 4 mins. - B&W (Film supplement to NASA Technical Note D-5682)	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

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FLUID AND GAS FLOW AND BEHAVIOR (continued)	ORDER PRINT FROM
USE OF AN ELECTRONIC VISUALIZATION TECHNIQUE IN THE STUDY OF GAS JOURNAL BEARING BEHAVIOR (Film No. C-259) - 5 mins. B&W (1968)	LeRC
FUEL ELEMENT FLOW TESTS (Film No. C-240) - 13 mins. B&W (1968) Partial and complete failures during flow tests of simulated gas-cooled nuclear reactor fuel elements.	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

MEDICAL RESEARCH	ORDER PRINT FROM
PILOT NYSTAGMUS DURING ROTATION (Film No. C-212) - 10 mins - 1960 The reaction of a pilot's vision to high-speed rotation in a multi-axis test facility at Lewis Research Center.	LeRC
CRASH IMPACT SURVIVAL IN LIGHT AIRPLANES (Film No. TF-28) 18 mins - 1954	LeRC
GEMINI VISUAL ACUITY EXPERIMENT 30 mins. - 1966 Defines visual acuity and presents the historical basis for the experiment. Shows how studies were conducted to establish the validity of the sightings. The selection, preparations, and instrumentation of the ground sites, development of in-flight equipment and flight crew training are shown. An analysis of data and photographs from all Gemini missions concludes the film.	MSC
ORBITAL OTOLITH EXPERIMENT 31 mins - 1970 The effect of weightlessness on the inner ear of a frog is tested.	ARC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

All color - sound unless otherwise noted

METALS, MATERIALS, CHEMICALS	ORDER PRINT FROM
REACTION CHARACTERISTICS OF FLOX SPILLS UPON VARIOUS MATERIALS (Film No. C-243) 16 mins. - 1966 Shows reaction characteristics when liquid fluorine, liquid oxygen, and mixtures of the two are spilled upon various materials. (Film supplement to NASA Technical Note D-3118)	LeRC
A STUDY OF LIQUID HYDROGEN IN ZERO GRAVITY (Film No. C-223) - 15 mins. - 1963 (Film supplement to NASA Technical Memorandum X-723 - classified confidential. Report available to qualified requesters only. Film is unclassified.)	LeRC
IMPACT SENSITIVITY OF TITANIUM IN CONTACT WITH LIQUID OXYGEN (Film No. C-222) - 7 mins - 1963 (Film supplement to NASA Technical Note D-1882)	LeRC
THROAT INSERTS FOR ABLATIVE THRUST CHAMBERS (Film No. C-255) 13 mins - 1968 (Film supplement to NASA Technical Memorandum X-1463)	LeRC
PRELIMINARY INVESTIGATION OF FRETTING (Film No. TF-23) 8 mins. - 1948	LeRC
THE DIFFUSION OF ATOMS IN SOLIDS - A PROCESS OF RANDOM JUMPING (Film No. C-268) - 5 mins.	LeRC

EXPERIMENTS - SCIENTIFIC AND ENGINEERING

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METALS, MATERIALS, CHEMICALS (continued)	ORDER PRINT FROM
DEVELOPMENT OF IMPROVED THROAT INSERTS - FOR ABLATIVE ROCKET ENGINES (Film No. C-261) - 30 mins. - (1969)	LeRC
LIGHTING IN CRYOGENIC AND NONCRYOGENIC FLUIDS (Film No. C-260) 8 mins. - (1968) (Film Supplement to NASA Technical Memorandum X-1654)	LeRC
HIGH TEMPERATURE MATERIALS (Film No. HQ-4) 27 mins. - 1958 Tests of various materials at elevated temperatures to determine their suitability for high temperature applications are described.	HQ. NASA
VACUUM HANDLING OF SPACE POWER SYSTEM MATERIALS (Film No. C-241) 12 mins. - 1966	LeRC
RESEARCH ON POLYMERIC MATERIALS HAVING HIGH DAMPING EFFICIENCY (Film No. A-123) 7 mins. - 1967	ARC
MARE EXEMPLUM Laboratory simulation of impact erosion and sedimentation processes on the lunar surface. (Film No. A-125) 6 mins. - 1966)	ARC
TOXIC PROPELLANT HAZARDS (Film No. 67-418) - 22 mins - (1967)	KSC

NASA FACILITIES

All color - sound unless otherwise noted

ORDER PRINT FROM

ZERO-G RESEARCH FACILITY (at Lewis Research Center) - (Film No. C-248) - 1970 — LeRC
8 mins.

ZERO GRAVITY FLIGHT FACILITY — LeRC
(Film No. C-217) - 8 mins. - 1961

MULTI-AXIS TEST FACILITY (Film No. C-207) — LeRC
5 mins. - 1960
Gimbaled-mounted cage for astronaut orientation in space flight conditions.

THE BIG MONITOR — NaPO
Shows personnel and facilities needed to support an interplanetary flight including the Deep Space Instrumentation Facility and the Space Flight Operations Facility.
19 mins. - 1965

THE ISLAND CALLED WALLOPS — WS
An overview of the launch facilities at NASA Wallops Station, Wallops Island, Va.
14 mins. - 1968

THE LAST WORRYING PLACE — WS
Informs scientists who plan to put experiments into space of the facilities available at Wallops Station and the cooperation needed.
12 mins. - 1968

DEEP SPACE INSTRUMENTATION FACILITY — NaPO
Describes the facilities and equipment used for communicating with satellites in deep space.
15 mins. - 1960

NASA FACILITIES

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	ORDER PRINT FROM
THE VITAL LINK Shows NASA's world-wide tracking networks. 28 mins. - 1967	ALL CENTERS GSFC
SPACEPORT - USA Shows the principal facilities and equipment at the John F. Kennedy Space Center 10 mins. - 1967	KSC
THE NASA MANNED SPACECRAFT CENTER - A NATIONAL RESOURCE 28 mins. - 1966	MSC
OUR CAPTIVE SPACE The 25-foot space simulator at Jet Propulsion Laboratory. 17 mins. - 1963	NaPO
DOORWAY TO TOMORROW Facilities and functions of the nation's spaceport at Kennedy Space Center 28 mins. - 1966	HQ NASA and KSC
SATURN LAUNCH COMPLEX 34 16 mins. - 1962	HQ NASA and KSC
ENVIRONMENTAL VIBRATION TESTING AT GODDARD SPACE FLIGHT CENTER 18 mins - B&W - 1963	GSFC
THIS IS ASTRIONICS Work performed by the Astrionics Laboratory of the Marshall Space Flight Center 17 mins. - 1965	MSFC

NASA FACILITIES

All color - sound unless otherwise noted

ORDER PRINT FROM

APOLLO/SATURN 5 — KSC

(Film No. KSC 68-015) - 14 mins. - (1968)
Facilities at KSC and principal steps in the preparation of a SATURN 5 vehicle.

FIRST OF THE SPACE PEOPLE - THE STORY OF THE GODDARD SPACE FLIGHT CENTER — GSFC
(GSFC Film No. 66-3) - 21 mins. - (1968)

SPACEPORT USA — ALL NASA CENTERS
(Film No. 70-044) - 23 mins. - 1970
Shows the facilities at the Kennedy Space Center.

RELIABILITY AND QUALITY ASSURANCE

All color - sound unless otherwise noted

ORDER PRINT FROM

THE ESSENTIAL COMPONENT — MSFC
Employee motivation in Zero Defects and Manned Flight Awareness programs.
14 mins. - 1966

POSTMARK MOON — MSFC
Stresses careful workmanship and shows a method of eliminating mistakes that have been applied in the development of launch vehicles.
16 mins. - 1967

THE MILLION DOLLAR ERASER — MSFC
Stresses careful workmanship
13 mins. - 1966

TECHNOLOGY AND TECHNOLOGY UTILIZATION

All color - sound unless otherwise noted

ORDER PRINT FROM

MANNED SPACECRAFT TECHNOLOGY — MSC
(Film No. MSC-65-269)
21 mins. - 1965
Reports on the hardware development and reliability of the Gemini and Apollo spacecraft. It shows various test facilities to insure the reliability of the spacecraft. The film illustrates the major differences in the Mercury, Gemini, and Apollo spacecraft. It continues with the Apollo, propulsion system, crew system, biomedical and instrumentation equipment, and landing system. The film concludes with preflight checkout of Apollo and Gemini spacecraft.

THE HARD ONES — ALL CENTERS
Problems encountered in designing, building, testing and operating scientific satellites.
15 mins. - 1965

OPTICAL COMMUNICATIONS DEVICE — LaRC
An optical communications device based upon the properties of corner reflector.
5 mins. - 1963

FLAT CONDUCTOR CABLE SYSTEMS (Film No. MC-121) — MSFC
18 mins. - 1964
Film describes the advances made in reduction in size of electronic components in the past decade, then points out that there has been no corresponding reduction in the size of wiring and cable harnesses. The development and use of a flat conductor cable system is described as a step in the direction of wiring and cable harness size reduction.

TECHNOLOGY AND TECHNOLOGY UTILIZATION

All color - sound unless otherwise noted

ORDER PRINT FROM

EXTERNAL MIXING SPRAY GUN NOZZLE — LaRC
(Film No. HQa-111)
4½ mins. - 1963
This film demonstrates the useful properties of a paint mixing device for spray guns, the patent for which is the property of a NASA employee. Colors do not have to be premixed and they can be changed easily. The shade desired can be regulated by a simple hand adjustment.

HAZARDS OF TIRE HYDROPLANING TO AIRCRAFT OPERATION (Film No. HQa-112) — LaRC
15 mins. - 1963
This film explains the phenomena of tire hydroplaning, under what conditions it occurs, and the resulting hazards to aircraft operations. This film, based upon tire studies at LRC, was produced to identify and draw particular attention to a wet runway hazard which is not yet fully appreciated. The film can perhaps be used best as a training film for flight and flight safety personnel.

POWER SUPPLY, INSTRUMENTATION AND COMMUNICATIONS OF THE MERCURY SPACECRAFT — MSC
15 mins. - 1962

ARROWS IN SPACE — GSFC
The use and capabilities of the various sounding rockets.
10 mins. - 1965

IN THE YEARS TO COME — WS
Shows the principal features of the ARCAS sounding rocket and its use in the Biospace Technology Training Program.
19 mins. - 1965

TECHNOLOGY AND TECHNOLOGY UTILIZATION

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ORDER PRINT FROM

SPACECRAFT PROPULSION AND POWER — MSC
(Film No. MSC-66-285)
30 mins. - 1966
Relates the sources of energy needed to propel vehicles in space. The primary and auxiliary spacecraft systems are discussed, with animation showing an Apollo lunar mission profile. It illustrates the principles of rocket thrust and delineates the use of liquid and solid propellants. The film concludes with the spacecraft electrical power systems, including fuel cells, solar cells, and dynamic engines.

MAGNETOMOTIVE FORMING (Film No. M-204) — MSFC
14½ mins. - 1966
Magnetomotive forming uses a new industrial tooling concept in which electricity is converted directly into force. The use of this new system at NASA's Marshall Space Flight Center for smoothing, punching, hammering, and forming metal is described.

SIGHT SWITCH (Film No. MC-139) — MSFC
10 mins. - 1966
Describes the use of a reflected infra-red ray sensative, sight switch as a device to control certain operations by movement of the human eye.

HYDRODYNAMIC SEALS (Film No. C-232) — LeRC
14 mins. - 1964
The basic functions of hydrodynamic (non-contact) seals are demonstrated through the use of plastic models and high-speed motion pictures. The potential use of this type seal in space power conversion systems is explained and demonstrated.

TECHNOLOGY AND TECHNOLOGY UTILIZATION

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ORDER PRINT FROM

BELLOWS FACE SEAL DYNAMIC INSTABILITY — LeRC
(Film No. C-230)
10 mins. - 1964
The testing of a bellows face seal with a 25 PSI pressure drop across the seal is shown. Test is made in the cryogenic conditions test facility with accelerometers attached to measure actual vibrations experienced. The seal is then checked for wear and the bellows inspected for cracks.

NEW CONCEPT FOR BUILDING BETTER BEARINGS — LeRC
(Film No. C-249)
5 mins. - 1967
Two engineers at Lewis discuss their discovery that the crystal structure of a metal affects its value as a material for rolling contact bearings, gears and cams.

FOREIGN OBJECT INGESTION INTO A TURBINE ENGINE BY VORTICES — LeRC
6 mins. - B&W - 1955
(Film Supplement to NACA Technical Note 3330)

ULTRA HIGH-SPEED CAMERA (Film No. TF-21) — LeRC
15 mins. - B&W - sound - 1948
Analysis of the focal-plane shutter of the 40,000-frame-per-second high-speed camera.

AN ARTIFICIAL HEART CONTROL SYSTEM — LeRC
(Film No. C-247)
18 mins. - 1966
This film shows how a control device for artificial hearts was built by Lewis for Cleveland Clinic. The analog computer type system was based on Lewis nuclear rocket control work.

TECHNOLOGY AND TECHNOLOGY UTILIZATION

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ORDER PRINT FROM

SOLID LUBRICANTS FOR USE IN EXTREME ENVIRONMENTS (Film No. C-231) — LeRC
11 mins. - 1964
Solid lubricants, their various uses, and their effectiveness in areas where oils and greases cannot be used are illustrated. The formulation and evaluation of solid lubricants for use at very low, or cryogenic, temperatures, at high temperatures, and in chemically corrosive environments are demonstrated with a theoretical and experimental procedure.

ALTERNATING CURRENT LIQUID METAL MHD GENERATOR (Film No. JPL-725) — NaPO
9 mins. - 1967
Film explains the construction, testing and operation of a compensated single wave magnetohydrodynamic generator.

APOLLO INFRARED MULTIDETECTOR RADIOMETER DEVELOPMENT (Film No. JPL-680) — NaPO
11½ mins. - 1966
The development of a radiometer to be mounted on the Apollo spacecraft for checking the amount of radiation emitted from the earth and the amount of carbon dioxide in the earth's atmosphere is discussed. The importance of this research to future world-wide weather forecasting accuracy is explained. The unfortunate destruction of the balloon gondola, which was to have taken the radiation equipment to an extreme altitude, is shown.

HANDLE WITH CARE — NaPO
The use of ultra-thin and ultra-light materials in spacecraft construction
10½ mins. - 1964

TECHNOLOGY AND TECHNOLOGY UTILIZATION

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ORDER PRINT FROM

JET SHOES - AN EXTRAVEHICULAR SPACE LOCOMOTION DEVICE (Film No. L-892) — LaRC
11 3/4 mins. - Silent - 1967
Tests of toe jets, attached to the feet of a subject suspended in a zero gravity rig, to control body movement and positioning in a simulated space situation are shown.

AUTOMATIC DATA HANDLING (Film No. C-234) — LeRC
5 mins. - 1964
The use of automatic data handling equipment to record temperature, pressure, flow, speed, and vibration in a test nuclear rocket with over 300 sensors attached and evaluate its performance from data received from the test is explained.

INTRODUCTION TO ANALOG COMPUTERS — LeRC
(Film No. C-233)
8 mins. - 1964

SIMULATION ON THE ANALOG COMPUTER — LaRC
(Film No. L-829)
7½ mins. - 1964

AMTRAN — MSFC
The purpose and use of the AMTRAN computer
6 mins. - 1966

A DEMONSTRATION OF COMPUTER-AIDED STRUCTURAL DESIGN — LaRC
(Film No. L-989)
6 mins. - 1968

TECHNOLOGY AND TECHNOLOGY UTILIZATION

All color - sound unless otherwise noted

	ORDER PRINT FROM
A WIND TUNNEL GUST RESPONSE TECHNIQUE (Film No. L-889) 4½ mins. - 1965	LaRC
THE SUPERSONIC TRANSPORT IN THE AIR TRAFFIC CONTROL SYSTEM (Film No. L-860) 18 mins. - 1965	LaRC
SPACE STATION RESEARCH (Film No. L-864) 4 mins. - 1965	LaRC
REDUCED GRAVITY SIMULATION FOR STUDY OF MAN'S SELF LOCOMOTION (Film No. L-804) 10 mins. - 1964	LaRC
EXPLORATORY STUDY OF MAN'S SELF-LOCOMOTION CAPABILITIES WITH A SPACE SUIT IN LUNAR GRAVITY (Film No. L-852) (10 mins. - 1964)	LaRC
HAZARDS OF TIRE HYDROPLANING - A SEQUEL (Film No. L-957) 14½ mins. - 1968	LaRC
SOLAR PANEL FABRICATION 10 mins. - 1964	NaPO
MANUAL NAVIGATION FOR MIDCOURSE SPACE FLIGHT (A recorded lecture by D. W. Smith) 22 mins. - 1966	ARC

TECHNOLOGY AND TECHNOLOGY UTILIZATION

All color - sound unless otherwise noted

ORDER PRINT FROM

THE CADMIUM SULFIDE THIN FILM SOLAR CELL — LeRC
(Film No. 270)
9 mins. - (1970)

VACUUM HANDLING OF SPACE POWER SYSTEM MATERIALS — LeRC
(Film No. C-241)
12 mins. - (1966)

IMPLANTABLE BIOTELEMETRY SYSTEMS - THE INSTRUMENTATION OF LIVING ORGANISMS — ARC
(Film No. AT-136)
27 mins. - 1969
Describes the "state of the art" of electronic devices that are designed and built for implanting in animals to monitor the functioning of the heart, the measurement of internal temperatures and pressures including a demonstration of the surgical implantation techniques.

THICK FILM MICROELECTRONICS — LaRC
(Film No. L-1013)
19 mins. - 1969
Shows the procedure used in preparing thick film printed circuits for use in electronic devices.

MOSFET - METAL OXIDE SILICON FIELD EFFECT TRANSISTORS — GSFC
6½ mins. - 1967

LANDING NOISE REDUCTION — ARC
(Film No. AT-137)
Presents the results of a study in the abatement of noise from multi-engined aircraft through the modification of the approach path.

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LAUNCH WINDOWS FOR LUNAR LANDING — MSC
(Film No. MSC 67-336)
20 mins. - 1968
Shows all the factors that affect the selection of the date and time of launch to place the Apollo spacecraft at a particular site on the lunar surface.

U. S. MANNED SPACE FLIGHT - A TRIUMPH OF TEAMWORK — MSC
(Film No. MSC 69-526)
36 mins. - 1969
Reviews the manned space flight program with some emphasis on the management executive teams and the people involved in the more important decisions.
Covers the period from 1963 through Apollo 11.

1969 - A YEAR OF FULFILLMENT — MSC
(Film No. MSC 69-505)
25 mins. - 1969
Reviews the highlights of the progress in manned space flight over the past 10 years. Summarizes the spin-off benefits that have resulted from the space program. Projects manned flight into the future including the Apollo Applications Program, the Space Station, the Space Shuttle and investigations of the Moon.

THE AERONOMY EXPLORERS - 19½ mins. - 1968 — GSFC
Presents the principal features of Atmospheric Explorers 17 and 32 and summarizes the results of their research in the upper atmosphere.

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THIS IS MISSION CONTROL — GSFC
(Film No. MSC 71-557)
28 mins. - 1970
Shows how NASA controls manned space flight missions. Includes the worldwide network of communications, the organization and equipment that control the launch at the Cape and the mission at Houston including the extensive use of computers on Earth and the spacecraft.

HERITAGE OF GODDARD - THE FIRST TEN YEARS — GSFC
22 mins. - 1969
Summarizes the programs and activities of the Goddard Space Flight Center from 1959 - 1969.

EARTH RESOURCES - MISSION 73 — MSC
(Film No. MSC 69-508)
20 mins. - 1969
A semi-technical report on experiments conducted jointly with the U. S. Geological Survey in which several airborne sensors were tested and evaluated.

STAC - THE FUTURE IN FOCUS — MSC
(Film No. MSC 70-530
21 mins. - 1970
Shows the contributions of the Science and Technology Advisory Committee to manned space flight.